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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/023,565

12/18/2001

Alan D. Cetel

EH-10559

2683

7590

03/23/2009

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EXAMINER

SHEEHAN, JOHN P

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

03/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/023,565	<b>Applicant(s)</b> CETEL, ALAN D.	
	<b>Examiner</b> John P. Sheehan	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on December 2, 2008 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 to 3 and 5 to 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

I. The new claim limitation that the claimed alloys possess the recited properties "without application of a solution heat treatment" (claims 1 and 12, the last two lines) does not find support in the application as filed. Applicants state that this limitation is not new matter that, "the relevant language is reflected in various parts of the original specification". However, applicants have not specifically cited any section of the specification in support of this new claim language.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

### **Rejection Based On Esser**

Claims 1 to 3 and 5 to 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esser et al. (Esser, WO 99/67435).

Esser teaches a directionally solidified (DS) nickel base super alloy (Abstract) having a composition that overlaps the alloy recited in applicants' claims (page 4, line 21 to page 5, line 15) and the use of the disclosed alloy in making gas turbine engine parts (page 5, lines 16 to 20). Esser teaches that the disclosed directionally solidified nickel based alloy typically has a plurality of grains as is recited in appellants' claims 1 to 3, 5

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to 11, 13 and 14. It is noted that applicants' claim 12 recites that the claimed alloy is "for use in columnar grain directionally solidified articles" (claim 12, line 2, emphasis added by the Examiner). Thus, claim 12 does not require that the claimed alloy is actually in a columnar grain directionally solidified form. Esser also teaches that the disclosed alloy includes 0.4 to about 1.5 volume % of a phase based on tantalum carbide (page 6, lines 2 to 5) as is claimed in each of claims 1 to 3 and 5 to 14. In view of the use of the phrases, "up to" (claim 1, line 6) and "less than" (claim 12, line 5) used in the instant claims to describe the zirconium content of the claimed alloy, the applicants' claims are considered to encompass 0% zirconium. The following table compares Esser's disclosed alloy (page 4, lines 21 to page 5, line 15 and page 6, lines 2 to 5) and the alloy composition recited in applicants' independent claims.

	Esser	Applicants' Claim 1	Applicants' Claim 12
Cr	9.5-14%	10-13.5%	12%
Co	7 to 11%	8-10%	9%
Mo	1-2.5%	1.25-2.5%	1.9%
W	3-6%	3.25-4.25%	3.8%
Ta	1-6%	4.5-6.0%	5%
Al	3-4%	3.25-4.5%	3.6%
Ti	3-5%	3-4.75%	4.1%
Nb	0-1%	No Intentional Addition	No Intentional Addition
B	0.003-0.015%	0.0025-0.025%	0.015%
Zr	Silent	Up to about 0.05%	less than 0.02% Which

		Which encompasses 0%	encompasses 0%
C	0.05-0.11%	0.05-0.15%	0.1%
Phase Based On Tantalum Carbide	0.4 to 1.5 vol.%	0.4 to 1.5 vol.%	0.4 to 1.5 vol.%

Esser's silence with regard to the disclosed alloy containing any Zr is considered to mean that Esser's alloy does not contain Zr.

The claims and Esser differ in that Esser: (1) does not teach the exact same alloy proportions; (2) does not disclose the use of Zr; and (3) is silent with respect to the properties recited in the claims and (4) Esser does not explicitly recite that the alloy is not solution heat treated.

However one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because applicants' claims recite Zr proportions that encompass 0% Zr, that is, these claims do not require Zr. Further, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy proportions taught by each of the references overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art references, particularly in view of the fact that;

"The normal desire of scientists or artisans to improve

upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Further, regarding the properties recited in the claims, it is the Examiner's position that in view of the fact that Esser's alloys have compositions that overlap the alloy compositions recited in the instant claims and have the exact same amount of a phase based on tantalum carbide, Esser's alloys would be expected to possess all the same properties as recited in the instant claims, In re Best, 195 USPQ, 430 and MPEP 2112.01.

“Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). ‘When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.’ In re Spada, 15 USPQ2d 655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977).” see MPEP 2112.01.

Finally, regarding, the limitation that the alloy is not solution heat treated, it is the Examiner's position that this limitation is in effect a process limitation. However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the process steps recited in applicants' product by process claims do not necessarily lend patentability to the claimed product, MPEP 2113.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695,698,227 USPQ 964,966 (Fed. Cir.1985).

Further, Esser's product, prior to the heat treatment taught by Esser is in the non-heat treated state as recited in the instant claims.

### **Rejection Based On Mitsuhashi**

Claims 1 to 3 and 5 to 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsuhashi et al. (Mitsuhashi, EPO Document No. 0 855 449 A1).

Mitsuhashi teaches a nickel base columnar grain directionally solidified super alloy (page 3, lines 39 to 46) having a composition that overlaps the alloy recited in applicants' claims (page 3, lines 23 to 45) and the use of the disclosed alloy in turbine engine parts (page 3, lines 23 to 26). In view of the use of the phrases, “up to” (claim 1, line 6) and “less than” (claim 12, line 5) used in the instant claims to describe the zirconium content of the claimed alloy, the applicants' claims are considered to encompass 0% zirconium. Mitsuhashi teaches that the disclosed alloy is Zr free (page 3, lines 43 and page 7, lines 5 to 13). Thus, with respect to zirconium, Mitsuhashi is considered to encompass the instantly claimed alloy containing 0% zirconium. The following table compares Mitsuhashi's disclosed alloy (page 4, lines 15 to 20) and the alloy composition recited in applicants' independent claims.



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	Mitsubishi	Applicants' Claim 1	Applicants' Claim 12
Cr	12-14.3%	10-13.5%	12%
Co	8.5 to 11%	8-10%	9%
Mo	1-3.5%	1.25-2.5%	1.9%
W	3.5-6.2%	3.25-4.25%	3.8%
Ta	3-5.5%	4.5-6.0%	5%
Al	3.5-4.5%	3.25-4.5%	3.6%
Ti	2-3.2%	3-4.75%	4.1%
Nb	Silent	No Intentional Addition	No Intentional Addition
B	0.005-0.05%	0.0025-0.025%	0.015%
Zr	Free of (pg. 3, line 42 and pg. 7, lines, 5 to 13)	Up to about 0.05% Which encompasses 0%	less than 0.02% Which encompasses 0%
C	0.04-0.12%	0.05-0.15%	0.1%
Phase Based On Tantalum Carbide	Silent	0.4 to 1.5 vol. %	0.4 to 1.5 vol. %

The claims and Mitsubishi differ in that Mitsubishi: (1) does not teach the exact same alloy proportions; (2) does not disclose the use of Zr; (3) is silent with respect to the properties recited in the claims and the presence of tantalum carbides and (4) Mitsubishi does not explicitly recite that the alloy is not solution heat treated..

However one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because as explained above, applicants' claims recite Zr proportions that encompass 0% Zr, that is, the claims do not require Zr and thus with respect to Zr content these claims are considered to be encompassed by Mitsuhashi's Zr free alloy. Further, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the alloy proportions taught Mitsuhashi overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in Mitsuhashi, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Further, regarding the properties recited in the claims and the presence of tantalum carbides, it is the Examiner's position that in view of the fact that the alloys taught by Mitsuhashi have compositions that overlap the alloy compositions recited in the instant claims, Mitsuhashi's alloys would be expected to possess all the same properties as recited in the instant claims, In re Best, 195 USPQ, 430 and MPEP 2112.01.

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“Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, *In re Best*, 195 USPQ 430, 433 (CCPA 1977). ‘When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.’ *In re Spada*, 15 USPQ2d 655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).” see MPEP 2112.01.

Finally, regarding, the limitation that the alloy is not solution heat treated, it is the Examiner’s position that this limitation is in effect a process limitation. However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the process steps recited in applicants’ product by process claims do not necessarily lend patentability to the claimed product, MPEP 2113.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Further, Mitsuhashi’s product, prior to the heat treatment taught by Mitsuhashi is in the non-heat treated state as recited in the instant claims.

***Response to Arguments***

4. Applicant's arguments filed December 2, 2008 have been fully considered but they are not persuasive.

Applicants' argument that the heat treatment taught by Esser, if applied to the present invention would destroy the part is not persuasive. Applicants have not provided any evidence in support of their statement that the heat treatment applied to Esser's alloy if applied to the present invention would destroy the part. Further, applicants' claims are not directed to applicants' process but rather appellants' claims are directed to an alloy. Further, whether or not the heat treatment taught by Esser would destroy the part is not considered to be relevant in that applicants' claims are not directed to a process but rather applicants' claims are directed to an alloy composition, which as set forth in the statement of the rejection is obvious in view of Esser's alloy. Finally, in the decision mailed, July 22, 2008, the Board of Patent Appeals and Interferences stated, in affirming this rejection (decision, page 17, the last paragraph);

In addition, Appellants have provided no evidence to support their statement that the parts of the present invention would be destroyed at the temperatures applied in Esser. Appellants' Specification discloses heat treatments at temperatures of up to 2200°F compared to 2282°F in Esser. (FF 3 and 9). Appellants' Specification does not indicate that heat treatments applied at temperatures above 2200°F would be detrimental to the claimed articles. (FF 4).

Applicants' argument, regarding Mitsuhashi, that the claimed invention has "good properties in the absence of a relatively high temperature solution heat treatment" is not persuasive. Applicants have not provided any evidence in support of their statement that, that the claimed invention has "good properties in the absence of a relatively high

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temperature solution heat treatment". Further, whether or not the heat treatment taught by Mitsuhashi is not required for the instantly claimed alloys is not considered to be relevant in that appellants' claims are not directed to a process but rather applicants' claims are directed to an alloy composition, which as set forth in the statement of the rejection is obvious in view of Mitsuhashi's alloy. Finally, in the decision mailed July 22, 2008, the Board of Patent Appeals and Interferences stated in affirming this rejection (decision, page 20, the last paragraph);

We are not persuaded by Appellants' arguments regarding the heat treatments applied in Mitsuhashi. We agree with the Examiner that the specific heat treatments employed in Mitsuhashi are not relevant to the present claims. (Ans. 16). As discussed above with respect to Esser, the present claims are not process claims and incorporate no process limitations. Additionally, the heat treatment temperatures applied in the present invention (up to 2200°F) overlap with the heat treatment temperatures disclosed in Mitsuhashi (2156°F - 2309°F and 2192°F - 2309°F). (FF 3 and 11). Appellants do not suggest any detrimental affects on parts produced at temperatures above those discussed in the Specification.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (7:30-5:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone numbers for

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the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.

/John P. Sheehan/  
Primary Examiner, Art Unit 1793

jps